

a reservoir containing an erasable ink comprising a solvent and a flake pigment having an average diameter from about 1 micron to about 25 microns dispersed in the solvent.

26.(Amended) A writing instrument, comprising:

a reservoir containing an erasable ink comprising a solvent and a flake pigment having an average thickness of less than about 1 micron dispersed in the solvent.

Please add new claims 27-30 as follows:

27. (New) The ink of claim 1 wherein said pigment is selected from the group consisting of mica flake pigments, glass flake pigments, and metal flake pigments.

28. (New) The ink of claim 1 wherein said pigment has an aspect ratio of between about 1 and about 8.

29. (New) The ink of claim 8 wherein said pigment has an aspect ratio of between about 1 and about 8.

30. (New) The ink of claim 14 wherein said pigment has an aspect ratio of between about 1 and about 8.

#### REMARKS

This paper is in response to the official action of March 28, 2002 (hereafter, the "official action"). This response is timely-filed, as it is accompanied by a petition for extension of time to file in the second month, and the requisite extension fee of \$400.

Prior to the entry of the foregoing amendments, claims 1-26 were pending. By the foregoing amendments, claims 1, 8, 14, and 21-26 have been amended, and new claims 27-30 have been added. Accordingly, claims 1-30 are at issue. The filing fee of \$72 for four additional claims in excess of twenty is enclosed herewith.

Support for the amendments to claims 1, 8, 14, and 21-26 can be found, for example, in the claims as originally-filed. Support for new claim 27 can be found, for example, at page 6, lines 25-27 of the present application. Support for new

claims 28-30 can be found, for example, at page 6, lines 10-15 of the present application.

In the official action, claims 1-3, 5-7, 21, and 24 have been provisionally rejected under 35 U.S.C. § 101 as claiming the same invention as that of claims 1, 2, 4-7, 21, and 24 of copending U.S. Serial No. 09/608,925 (hereafter "the parent application"). Claims 1-26 have also been variously provisionally rejected for obviousness-type double patenting over claims of copending U.S. Serial Nos. 09/609,811, 09/608,925 (the parent application), 09/898,942, and 09/553,119.

Claims 1, 8, 14, and 21-26 have been rejected under 35 U.S.C. § 112, 2<sup>nd</sup> ¶, as allegedly being indefinite. Claims 1-26 have been rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 6,306,930 to Tsujio (hereafter "the '930 patent"). Claims 1-26 have also been rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 4,687,791 to Miyajima (hereafter "the '791 patent").

The various bases for the claim rejections will be addressed below in the order presented in the official action. Reconsideration of the application, as amended, is solicited.

## **CLAIM REJECTIONS**

### **I. Double Patenting**

#### **1. 35 U.S.C. § 101**

##### **A. U.S. Serial No. 09/608,925 - "the parent application"**

Claims 1-3, 5-7, 21, and 24 have been provisionally rejected under 35 U.S.C. § 101 as claiming the same invention as that of claims 1, 2, 4-7, 21, and 24 of the parent application. The statutory double patenting rejection has been rendered moot and should be withdrawn in view of the letter of express abandonment of the parent application filed concurrently herewith.

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#### **2. *Obviousness-type Double Patenting***

##### **A. U.S. Serial No. 09/609,811**

Claims 1-26 have been provisionally rejected for obviousness-type double patenting over claims 1-10, 15-22, and 26-29 of copending U.S. Serial No. 09/609,811. In view of applicants' letter of express abandonment of application Serial

No. 09/609,811 (filed concurrently herewith) in favor of U.S. Serial No. 09/898,942, a continuation-in-part filing of U.S. Serial No. 09/609,811 (*see* comments on U.S. Serial No. 09/898,492 below), the obviousness-type double patenting rejection over U.S. Serial No. 09/609,811 has been rendered moot and should be withdrawn.

B. U.S. Serial No. 09/608,925 - the parent application

Claims 4, 8-20, 22, 23, 25, and 26 have been provisionally rejected for obviousness-type double patenting over claims 3, 8-20, 22, 23, 25, and 26 of the parent application. This double patenting rejection should be withdrawn because it has been rendered moot by the letter of express abandonment of application Serial No. 09/608,925 filed concurrently herewith.

C. U.S. Serial No. 09/898,942

Claims 1, 2, 4-9, 11-15, 17-22, and 24 have been provisionally rejected for obviousness-type double patenting over claims 1, 2, 3, 7-9, 20-25, 33, 34, 36, 38, and 40 of copending U.S. Serial No. 09/898,942. Applicants respectfully submit that this provisional rejection will be rendered moot when a response is filed in U.S. Serial No. 09/898,942.

D. U.S. Serial No. 09/553,119

Claims 1, 3, 5-7, 21, and 24 have also been provisionally rejected for obviousness-type double patenting over claims 1, 4, 5, 26-28, 32, 33, 35, 38-40, 61, and 62 of copending U.S. Serial No. 09/553,119. In view of applicants' letter of express abandonment of application Serial No. 09/553,119 (filed concurrently herewith) in favor of U.S. Serial No. 09/857,561, a continuation-in-part filing of U.S. Serial No. 09/553,119, the obviousness-type double patenting rejection over U.S. Serial No. 09/553,119 has been rendered moot and should be withdrawn.

**II. 35 U.S.C. § 112, 2<sup>nd</sup> ¶ - Indefiniteness**

~~1. Claims 1, 8, 14, and 21-26~~

The examiner rejected claims 1, 8, 14, and 21-26 for allegedly being indefinite because "the term "like" is appended to an otherwise definite phrase (*i.e.*, flake-like)." *See* official action at page 4. The examiner suggested that the applicants delete the term "like" from the pending claims. Claims 1, 8, 14, and 21-26 have been amended in accordance with the examiner's suggestion. Accordingly, the 35 U.S.C.

§112 rejection of claims 1, 8, 14, and 21-26 for indefiniteness has been overcome, and should be withdrawn.

Nonetheless, while applicants have made the above amendments in accordance with the examiner's suggestion, it is respectfully submitted that the claims as filed were not indefinite under §112, because claims are considered definite as long as "the scope of the claims is clear so the public is informed of the boundaries of what constitutes infringement of the patent." *See* M.P.E.P. § 2173.

### III. 35 USC §103(a)

#### 1. U.S. Patent No. 6,306,930

##### A. *Claims 1-26*

The applicants respectfully traverse the rejection of claims 1-26 as obvious over the '930 patent.

In rejecting claims 1-26 over the '930 patent, the examiner recognized that the '930 patent "fails to specifically exemplify the use of a pigment having a flake morphology as claimed by applicant." *See* official action at page 5. However, applicants respectfully submit that the '930 patent also fails to suggest an erasable ink comprising a flake pigment as recited by the pending claims.

The '930 patent discloses an erasable, aqueous ink formulation comprising a colorant and discloses numerous colorants, including graphite. In order to accomplish its stated object of providing an easily erasable ink composition, the '930 patent employs "an ink composition containing a colorant whose particle size is controlled within a certain range." *See* '930 patent at column 1, lines 38-50. For example, the '930 patent discloses that "it is required that the colorant have a mean particle size of not less than 2  $\mu\text{m}$  and particles having a size of not more than 1.8  $\mu\text{m}$  account for not more than 1.6% by weight on the colorant basis, or that the colorant have a mean particle size of not more than 7  $\mu\text{m}$  and particles having a size of not less than 7  $\mu\text{m}$  account for not more than 0.5% by weight on the colorant basis." *See* '930 patent at column 2, lines 32-38. The '930 patent further discloses that the "shape of the colorant (particle) is **not critical** but may be spherical, polyhedral, flaky or fibrous, for instance." *See* '930 patent at column 2, lines 59-63 (emphasis added).

In direct contrast, the pending application discloses that "[t]he flake-like morphology of the pigment particles results in a "leafing" phenomenon wherein the particles lie flat and align horizontally on the surface of the substrate material, overlapping each other, without penetrating into the interstices of the substrate. Such leafing particles are easily erased...." See page 6, lines 20-24 of the present application (emphasis added). Moreover, "the ink is substantially free of dyes, and of pigments having a non-flake-like morphology, as these colorants will tend to interfere with erasability." See page 3, lines 6-7 of the present application.

Thus, whereas the '930 patent specifically indicates that the morphology of the colorant is essentially immaterial to the writing performance of the disclosed ink, the present application teaches that the flake morphology of the pigment(s) is important for obtaining erasability. Furthermore, while the '930 patent discloses a pigment such as graphite and a flaky pigment shape, the '930 patent does not disclose or suggest the combination of a flake morphology and graphite.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must **both** be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991); see also M.P.E.P. § 2142.

For the reasons set forth above, it is respectfully submitted that the '930 patent does not suggest or disclose an ink comprising a flake pigment or a pigment having a flake morphology. Each of the pending claims recites either a flake pigment or a pigment having a flake morphology. Accordingly, the rejection of claims 1-26 for nonobviousness over the '930 patent should be withdrawn.

The applicants respectfully submit that further evidence of the non-obviousness of claims 1-26 is that the '930 patent actually teaches away from the claimed invention. "A prior art reference must be considered in its entirety, *i.e.*, as a whole, including portions that would lead away from the claimed invention." *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983); see also M.P.E.P. § 2141.02.

For example, the '930 patent discloses that the most preferable pigment morphology is "as close as possible to the true sphere," see '930 patent at column 2, lines 59-63, whereas the present application explicitly discloses that such non-flake

pigments have a deleterious affect on erasability (as previously set forth above). Each of the pending claims recites a flake pigment.

It is respectfully submitted that an obviousness rejection based upon a reference that specifically teaches against the claimed invention is manifestly improper, and should not be made. For this additional reason, it is respectfully submitted that the rejection of claims 1-26 over the '930 patent should be withdrawn.

The examiner recognized that the '930 patent is silent with regards to shear-thinning index and erasability. *See* official action at page 5. However, the examiner maintained that "the ink taught by the reference would obviously have the same shear-thinning index, because they use the same components comprised in the ink composition." *See* official action at page 5. Similarly, the examiner stated that "the ink as taught [by the '930 patent] reads on applicant's claimed invention having the same components therefore it would obviously have the same erasability that applicant has claimed. *Id.*

The applicants do not agree with the examiner's characterization of the claimed invention, *i.e.*, applicants respectfully submit that the ink as taught by the '930 patent does not read on applicants' invention. The pending claims recite a flake pigment (or a pigment having a flake morphology), and the '930 patent does not disclose or suggest such a pigment. Accordingly, the ink disclosed by the '930 patent would not have the same components recited in the pending claims, and would not have the same shear-thinning index and/or erasability. The rejection of claims 5, 7, 11, 13, 18, and 20 should be withdrawn on this additional basis.

Finally, the '930 patent does not disclose or suggest an ink comprising a flake pigment having an average thickness of less than about 1 micron as recited by claims 14-20 and 23. The absence of disclosure regarding the thickness of the colorant particles is not surprising as the '930 patent is directed to inks having spherical colorant pigment particles, which can be sufficiently described by a single measurement such as particle radius and/or diameter.

In order to establish a *prima facie* case of nonobviousness, the prior art reference must teach or suggest all of the claim limitations. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991); *see also* M.P.E.P. § 2142. Because the '930 patent fails to disclose

or suggest an ink comprising a flake pigment having an average thickness of less than about 1 micron, the rejection of claims 14-20 and 23 should be withdrawn.

B. *New Claims 27-30*

New claim 27 recites a pigment selected from the group consisting of mica flake pigments, glass flake pigments, and metal flake pigments. The '930 patent does not disclose or suggest such a pigment. It is further submitted that new claim 27 is patentable over the '930 patent for the reasons discussed above in relation to claims 1-26.

New claims 28-30 recite an aspect ratio, and thereby set forth the relationship between the length and the width of the pigment particles. It is respectfully submitted that the '930 patent does not disclose or suggest an ink comprising pigment particles having an aspect ratio or any other defined relationship between the length and width of the particles. Accordingly, claims 28-30 are patentable over the '930 patent for this additional reason.

2. U.S. Patent No. 4,687,791

A. *Claims 1-26*

The applicants respectfully traverse the rejection of claims 1-26 as obvious over the '791 patent.

In rejecting claims 1-26 over the '791 patent, the examiner recognized that the '791 patent "fails to specifically exemplify the use of a pigment having a flake morphology as claimed by applicant." *See* official action at page 6. However, the examiner maintained that "it would have been obvious to one of ordinary skill in the art to use the pigment having a flake morphology as claimed ... [because the '791 patent] discloses the use of these pigments but shows no example incorporating them."

----- In making this statement, the examiner seems to assume that the disclosed graphite pigments must necessarily have a flake morphology. This simply is not true. Several different morphologies of graphite are well-known, including flake, high-crystalline, and amorphous. Moreover, graphite can be in various other forms, *e.g.*, powdered, rods, plates, or fibers. Accordingly, the recitation of graphite in the '791 patent does not disclose or suggest a flake pigment.

To establish a *prima facie* case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981 (CCPA 1974); *see also* M.P.E.P. § 2143.03. Because the '791 patent does not suggest or disclose a flake pigment as recited by the pending claims, the rejection of claims 1-26 should be withdrawn.

The '791 patent discloses "an erasable ballpoint pen [ink] comprising a rubber component, a volatile solvent, a pigment and a non-volatile solvent, which additionally comprises finely divided powders of an inorganic compound." *See* official action at page 6. The rubber component facilitates the erasability of the disclosed ink. For example, if the content of the rubber component "is less than about 10 [wt.] %, poor erasabilities may result." *See* '791 patent at column 3, lines 29-32. The shape of the pigment particles has no apparent effect on the erasability of the ink disclosed by the '791 patent. Accordingly, while the ink disclosed by the '791 patent and the claimed invention address the same problem (*i.e.*, providing an erasable ink), the claimed ink solves this problem in a completely different fashion.

It is respectfully submitted that an ink comprising a rubber component does not disclose or suggest an ink comprising a flake pigment, and that the rejection of claims 1-26 should be withdrawn on this additional basis.

Furthermore, the '791 patent teaches away from the claimed invention. For example, the '791 patent suggests the interchangeability of carbon black and graphite particles. *See* '791 patent at column 3, lines 61-65. While they may be equivalents for some purposes, carbon black and graphite are not equivalents for the purposes of the claimed invention because carbon black particles do not possess a flake-like morphology, and therefore negatively influence ink erasability.

It is respectfully submitted that an obviousness rejection based upon a reference which teaches away from the claimed invention can not be maintained, and should be withdrawn.

In addition to the features discussed above, claims 6, 12, and 19 further recite an aqueous solvent system. The '791 patent does not disclose an aqueous solvent system. The '791 patent discloses the use of an organic solvent system comprising one or more volatile organic solvents (such as aliphatic hydrocarbons, petroleum-based solvents, and aromatic hydrocarbons), in conjunction with a



nonvolatile solvent (such as a petroleum lubricating oil, a plasticizer, or a liquid fatty acid). See '791 patent at column 3, lines 39-48, and at column 4, lines 9-15, respectively. Accordingly, the '791 patent does not disclose or suggest an aqueous ink formulation, and the rejection of claims 6, 12, and 19 should be withdrawn for this additional reason.

As set forth above with respect to the '930 patent, the '791 patent is silent with respect to erasability and shear-thinning index. It is respectfully submitted the rejection of claims 5, 7, 11, 13, 18, and 20 should be withdrawn on this additional basis.

Finally, the '791 patent does not disclose or suggest an ink comprising a flake pigment having an average thickness of less than about 1 micron as recited by claims 14-20 and 23. Because the '791 patent fails to disclose or suggest an ink comprising a flake pigment having an average thickness of less than about 1 micron, the rejection of claims 14-20 and 23 should be withdrawn.

B. *New Claims 27-30*

Applicants respectfully submit that new claims 27-30 are patentable over the '791 patent for the same reasons set forth above with respect to the '930 patent. An indication of the allowability of new claims 27-30 is earnestly solicited.



It is respectfully submitted that the application is now in condition for allowance. Pursuant to 37 C.F.R. § 1.121, attached hereto following the signature page, is a marked-up version showing the changes made by the present amendment. The first page of the marked-up version of the changes is captioned "**VERSION WITH MARKINGS TO SHOW CHANGES MADE.**"


Should the examiner wish to discuss the foregoing, or any matter of form or procedure in an effort to advance this application to allowance, she is respectfully invited to contact the undersigned attorney at the indicated telephone number.

Respectfully submitted,

Marshall, Gerstein & Borun

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By:

  
James P. Zeller, Reg. No. 28,491  
Attorney for Applicants  
6300 Sears Tower  
233 S. Wacker Drive  
Chicago, Illinois 60606-6354  
(312) 474-6300

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SEP 5 2002

**TC 1700**



**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**In the Claims:**

Please amend claims 1, 8, 14, and 21-26 as follows:

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1.(Amended) An erasable ink for use in a writing instrument,  
comprising:

a solvent, and

a pigment having a flake[-like] morphology dispersed in the solvent,  
wherein the ink is substantially free of colorants other than said pigment.

8.(Amended) An erasable ink for use in a writing instrument,  
comprising:

a solvent, and

a flake[-like] pigment having an average diameter from about 1 micron  
to about 25 microns dispersed in the solvent.

14.(Amended) An erasable ink for use in a writing instrument,  
comprising:

a solvent, and

a flake[-like] pigment having an average thickness of less than about 1  
micron dispersed in the solvent.

21. (Amended) A method of forming an erasable marking on a paper  
substrate, comprising:

making a marking on the substrate with a writing instrument  
containing an erasable ink comprising a solvent and a pigment having a flake[-like]  
morphology dispersed in the solvent, wherein the ink is substantially free of colorants  
other than said pigment.

22.(Amended) A method of forming an erasable marking on a paper  
substrate, comprising:

making a marking on the substrate with a writing instrument  
containing an erasable ink comprising a solvent and a flake[-like] pigment having an  
average diameter from about 1 micron to about 25 microns dispersed in the solvent.

23.(Amended) A method of forming an erasable marking on a paper substrate, comprising:

making a marking on the substrate with a writing instrument containing an erasable ink comprising a solvent and a flake[-like] pigment having an average thickness of less than about 1 micron dispersed in the solvent.

24.(Amended) A writing instrument, comprising:

a reservoir containing an erasable ink comprising a solvent and a pigment having a flake[-like] morphology dispersed in the solvent, wherein the ink is substantially free of colorants other than said pigment.

25.(Amended) A writing instrument, comprising:

a reservoir containing an erasable ink comprising a solvent and a flake[-like] pigment having an average diameter from about 1 micron to about 25 microns dispersed in the solvent.

26.(Amended) A writing instrument, comprising:

a reservoir containing an erasable ink comprising a solvent and a flake[-like] pigment having an average thickness of less than about 1 micron dispersed in the solvent.